



**Air Pollution Control Board**  
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**Air Pollution Control District**  
R. J. Sommerville    Director

**DATE:**                    June 17, 1998  
**TO:**                      Air Pollution Control Board  
**SUBJECT:**              Adoption of New Rule 69.5 - Natural Gas-Fired Water Heaters and  
New Rule 69.6 - Natural Gas-Fired, Fan-Type Central Furnaces  
(District: All)

## **SUMMARY:**

### **Overview**

The California Air Resources Board designated San Diego County as a Serious nonattainment area regarding the state ozone standard. State law requires air districts in nonattainment areas to prepare plans identifying emission control measures to attain state clean air standards as early as possible (Health and Safety Code Section 40910 et seq., enacted in 1988). Districts unable to reduce nonattainment pollutants by 5 percent annually must include an expeditious schedule for adopting all feasible control measures. Accordingly, the San Diego Regional Air Quality Strategy (RAQS) was adopted by the Board on June 30, 1992 (APCB #1), and updated December 12, 1995 (APCB #3). The RAQS commits to the expeditious adoption of all feasible control measures since 5 percent annual reductions are not achievable in San Diego. Proposed new Rules 69.5 and 69.6 implement feasible control measures identified in the RAQS.

Effective January 1, 1999, proposed new Rules 69.5 and 69.6 will prohibit the distribution, sale or installation of new natural gas-fired residential-type water heaters and central furnaces unless the oxides of nitrogen emissions meet prescribed limits. Oxides of nitrogen are a precursor to ozone (the primary component of smog). The rules apply only to the sale or installation of new residential-type water heaters and furnaces; existing units are not affected. Assuming a 10-year life span for such equipment, the annual emission reductions by 2009 will be 426 tons per year (Rules 69.5, 318 tons per year; Rule 69.6, 108 tons per year).

The rule provisions are the same as those in several other California air districts, including the South Coast, Bay Area, and Ventura, among others. The control technology is well established. Manufacturers indicate units being shipped to California, including San Diego County, meet the proposed requirements. Further, manufacturers indicate no price difference between conventional and emission-controlled units. The Gas Appliance Manufacturers Association confirmed this fact and has indicated support for adopting the proposed rules.

### **Recommendation**

#### **AIR POLLUTION CONTROL OFFICER:**

Adopt the resolution adding new proposed Rules 69.5 and 69.6 to the District Rules and Regulations and make appropriate findings:

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- (i) of necessity, authority, clarity, consistency, non-duplication and reference as required by Section 40727 of the State Health and Safety Code;
- (ii) that the adoption of new Rules 69.5 and 69.6 will alleviate a problem and will promote attainment of ambient air quality standards (Section 40001 of the State Health and Safety Code);

that an assessment of socioeconomic impacts of the proposed amendments has been prepared as required by Section 40728.5 of the State Health and Safety Code and that the socioeconomic impacts of the new rules have been actively considered and the District has made good faith effort to minimize adverse socioeconomic impacts; and

that there is no reasonable possibility that the new rule may have a significant adverse effect on the environment, and that adoption of new Rules 69.5 and 69.6 is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15308, as an action taken to assure the maintenance or protection of the environment and where the regulatory process involves procedures for protection of the environment.

### **Fiscal Impact**

Adopting the proposed rules will have no fiscal impact on the District.

### **Business Impact Statement**

Water heaters and fan-type central furnaces meeting the proposed requirements are currently in production and commercially available. Manufacturers indicate there is no price difference between conventional and emission-controlled units. Consequently, Rules 69.5 and 69.6 are not expected to increase costs for manufacturers, distributors, or consumers.

### **Alternatives**

No alternative is recommended because state law requires the District to adopt all feasible control measures and the state Air Resources Board has determined that water heater and central furnace rules, as proposed, are feasible control measures. Further, the control measures are included in the adopted Regional Air Quality Strategy and will assure significant emissions reduction (426 tons per year) at no additional cost.

### **Advisory Statement**

The Air Pollution Control Advisory Committee recommended adopting proposed new Rules 69.5 and 69.6 at its May 27, 1998, meeting.

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## **BACKGROUND**

Attachment I contains background information, information on compliance with Board policy on adopting new rules, and information on compliance with the California Environmental Quality Act.

### **Additional Information**

Attachment II contains the Resolution for Rules 69.5 and 69.6.

Attachment III contains the report for the public workshop held on April 22, 1998.

Attachment IV contains the Socioeconomic Impact Assessment for Rules 69.5 and 69.6.

Attachment V contains the Comparative Analysis of Rules 69.5 and 69.6 and Existing Requirements (Health & Safety Code Section 40727.2).

Concurrence:

**LAWRENCE B. PRIOR III**  
Chief Administrative Officer

Respectfully submitted,

**BY: ROBERT R. COPPER**  
Deputy Chief Administrative Officer

  
**R. J. SOMMERVILLE**  
Air Pollution Control Officer

**SOCIOECONOMIC IMPACT ASSESSMENT OF  
RULE 69.5 - NATURAL GAS-FIRED WATER HEATERS AND  
RULE 69.6 - NATURAL GAS-FIRED, FAN-TYPE CENTRAL FURNACES**

Effective January 1, 1992, state law requires that whenever the District proposes adoption, amendment or repeal of a rule or regulation significantly affecting air quality or emission limitations, a socioeconomic impact assessment must be prepared, insofar as data are available (Section 40728.5 of the State Health & Safety Code). The Health and Safety Code specifies the following elements be included in the socioeconomic impact assessment:

- (1) Type of industries or business, including small business, affected by the rule or regulation.
- (2) Range of probable costs, including costs to industry or business, including small business, of the rule or regulation.
- (3) Emission reduction potential of the rule or regulation
- (4) Necessity of adoption, amending, or repealing the rule or regulation in order to attain the state and federal ambient air standards.

**NECESSITY OF ADOPTING RULE 69.5 & RULE 69.6**

The California Air Resources Board designated San Diego County as a Serious nonattainment area regarding the state ozone standard. State law requires air districts in nonattainment areas to prepare regional air quality plans identifying emission control measures to be implemented to attain state clean air standards as early as possible (Health and Safety Code section 40910 et seq., enacted in 1988). Districts unable to reduce nonattainment pollutants by 5 percent annually must include in their plans an expeditious schedule for adopting all feasible control measures. The San Diego Regional Air Quality Strategy (RAQS) was adopted by the Board on June 30, 1992 (APCB #1), and updated on December 12, 1995 (APCB #3). The RAQS commits to the expeditious adoption of all feasible control measures since 5 percent annual reductions are not achievable in San Diego. Proposed new Rules 69.5 and 69.6 implement control measures identified in the RAQS.

The rules are expected to have minimal impact on employment and the economy in San Diego County and will not have a significant adverse effect on manufacturers of water heaters and central furnaces. At the same time, the amount of emissions reduced will provide tangible benefits to air quality in San Diego and will contribute to attaining federal and state ambient air quality standards for ozone.

**RULE 69.5 - NATURAL GAS-FIRED WATER HEATERS**

Rule 69.5 limits oxides of nitrogen emissions from new natural gas-fired water heaters by requiring emission standards of 40 nanograms per Joule or less of heat output for residential-type water heaters, and 50 nanograms per Joule or less of heat output for mobile home water heaters. The rule applies to water heaters with a rated heating capacity less than 75,000 Btu per hour. Existing water heaters and water heaters used in recreational vehicles or used exclusively to heat swimming pools and hot tubs are exempt.

### **Type of Industries Affected by Rule**

Rule 69.5 will directly affect manufacturers of water heaters (Standard Industrial Classification (SIC) 3639). There are no manufacturers in San Diego County. The rule will indirectly affect home improvement stores and dealers; installation, plumbing, repair and replacement, and general contractors; home builders and remodelers (SIC 1521, 1522, 1711, 5074, and 5251); and consumers.

### **Range of Probable Costs**

A variety of complying water heaters are commercially available as a result of rules adopted by the South Coast, Ventura County, Bay Area, and other California air districts. Therefore, compliance with Rule 69.5 is not expected to increase costs for manufacturers to develop new technology or increase costs to consumers. Cost-effectiveness varies from a minimal or no cost increase to a net benefit (cost savings) of \$4,962 per ton (\$2.48 per pound) of emissions reduced.

In 1992, the Environmental Protection Agency (EPA) performed a study for control of oxides of nitrogen emission sources in the Sacramento Ozone Nonattainment Area. The study estimated a capital savings by installing emission-controlled water heaters instead of conventional units. The lower manufacturer's cost was attributed to increased production, competition, and recovery of initial development costs. Retail prices obtained from a 1992 sales catalog for one brand of tall, high-efficiency water heaters meeting an emission limit of 40 nanograms per joule of heat output averaged \$4 less than those for conventional units. Furthermore, according to costs published in a 1990 catalog for the same vendor, cost of emission-controlled units decreased since 1990.

A 1997 District survey of water heater manufacturers and distributors compared more recent prices for emission-controlled and conventional water heaters. Survey results support EPA's findings. Suggested retail prices, obtained from two California distributors, were the same for both conventional and emission-controlled type water heaters. Furthermore, distributors indicated that generally all water heaters shipped to southern California, including San Diego County, are emission-controlled units consistent with rules of other California air districts. Another manufacturer offers for sale only emission-controlled water heaters, prices for which were obtained from a local distributor. Accordingly, although costs may vary depending on retail outlet, water heater model, and time of purchase, Rule 69.5 is not expected to increase costs to consumers.

### **Emission Reduction Potential**

Because similar rules were previously adopted by other California air districts, emission-controlled water heaters are widely available in San Diego County. The 1992 EPA study estimated that half of water heaters sold in the Sacramento area were emission-controlled units prior to adoption of a local Sacramento water heater rule. An equivalent mix of emission-controlled and conventional water heaters is assumed for the San Diego County area in 1998. This is a conservative estimate because the existing share of emission-controlled units is likely greater. Gradual turnover of typical water heaters occurs over an average 10-year life span. Consequently, it is assumed that all water heaters in use will meet the emission limit by 2009. Implementing Rule 69.5 is expected to reduce emissions by 318 tons per year.

## **RULE 69.6 - NATURAL GAS-FIRED, FAN-TYPE CENTRAL FURNACES**

Rule 69.6 limits oxides of nitrogen emissions from new natural gas-fired, fan-type central furnaces by requiring emission standards of 40 nanograms per Joule or less of useful heat delivered to the heated space for residential central furnaces. The rule applies to central furnaces with a rated heating capacity less than 175,000 Btu per hour, and for any combination heating and cooling unit with a rated cooling capacity less than 65,000 Btu per hour. Existing central furnaces and central furnaces used in mobile homes are exempt.

### **Types of Industries Affected by Rule**

Rule 69.6 will directly affect manufacturers of fan-type central furnaces (SIC 3585). There are no manufacturers in San Diego County. The rule may indirectly affect home improvement stores and dealers; installation, repair and replacement, and general contractors; home builders and remodelers (SIC 1521, 1522, 1711, 5074, and 5075); and consumers.

### **Range of Probable Costs**

A variety of complying furnaces are commercially available as a result of rules adopted by the South Coast, Ventura County, and Bay Area air districts. Therefore, compliance with Rule 69.6 is not expected to increase costs for manufacturers to develop new technology or increase costs to consumers. Cost-effectiveness varies from a minimal or no cost increase to a worst case scenario of \$6,773 per ton (\$3.39 per pound) of emissions reduced. The worst case scenario assumes a \$10 cost increase to manufacture emission-controlled central furnaces as estimated by the South Coast Air Quality Management District (AQMD) during rule development in 1978.

A District survey of manufacturers and distributors conducted in 1998 to compare emission-controlled and conventional furnace prices shows no price differential. Manufacturers advised that generally all units shipped to California are emission-controlled units consistent with rules of other California air districts, and that there is no price differential between conventional and emission-controlled units. Accordingly, although costs may vary depending on retail outlet, furnace model, and time of purchase, Rule 69.6 is not expected to increase costs to consumers.

### **Emission Reduction Potential**

Because similar rules were previously adopted by other California air districts, emission-controlled central furnaces are widely available in San Diego County. An equivalent mix of in-use emission-controlled and conventional central furnaces was assumed for the San Diego County area in the 1998 base year, the same as that used for water heaters. Gradual turnover of typical central furnaces occurs over an average 10-year life span. Consequently, it is assumed that all central furnaces in use will meet the emission limit by 2009. Implementing Rule 69.6 is expected to reduce emissions by 108 tons per year.